

Precise, controlled aerosols wet or dry: ISAB launches new nebulizer feature

From cystic fibrosis to antibiotics, work on new *inhalable* biologic therapies is growing. With biologics formulated as liquid solutions, the need for precisely controllable wet, as well as dry, aerosols is crucial. PreciseInhale’s new nebulizer feature meets the need, generating aerosol from liquids—and letting researchers choose to deliver them as either wet or dry aerosols to PreciseInhale’s wide range of exposure modules.

“Wet or dry aerosol isn’t really the question,” says ISAB CSO Per Gerde. “Precise aerosols and results—or not. That’s what’s really important for drug developers.”

Gerde is describing PreciseInhale’s new nebulizer feature. It lets early-stage drug developers generate aerosols, with all of its hallmark precision and accuracy, from liquid solutions—using a flexible mesh nebulizer.

It was developed from meeting the real needs of clients, like many of PreciseInhale’s most successful features. And as new biologic drugs grow in popularity, the feature is already attracting attention.

“We’re having discussions with companies who’ve approached us about this,” says Gerde. “Quite often they have substances that are water-soluble, quite often a biologic molecule, and they don’t want to formulate a dry powder, which is an effort. So that’s where the nebulizer comes in.”

HOW DOES IT WORK?

“We may get the drug we want to test either as a flake of dry material, or already in a small volume of liquid solution. . And we’ve focussed on using one nebulizer – the Aeronet mesh nebulizer – because it is very flexible, widely used and very easy to use. We have completely integrated it into our system, so users can set and control the dose from the nebulizer accurately, digitally, onscreen, as one of the standard aerosol generation methods of PreciseInhale.”

IMPROVED LUNG DEPOSITION

Uniquely, the PreciseInhale Nebulizer feature lets researchers choose between maintaining the wet aerosol droplets through the exposure, or drying them down, with bone-dry carrier air plus a humidity-absorbing filter paper in the holding chamber. This generates a “dry powder like” aerosol to be delivered to exposure. The reduction in particle size that comes with drying can dramatically increase the peripheral lung deposition and the small airway exposures.

Was it difficult? “We worked hard on turning down the nebulizer’s output. Many nebulizers are made for hospitals and healthcare, for exposing large lungs, or for exposing towers with a number of test animals at a time. We always have the strategy of gently dosing just one animal at a time – because that’s how you can keep control of what you’re doing and what it’s inhaling. But we’ve been running final tests and it’s performing excellently.”

LOW WASTE; LOW CONSUMPTION

Another challenge with biologics, Gerde points out, is that they are often extremely expensive. PreciseInhale's low substance consumption and low waste offer benefits here too. "We don't lose much of the biologic substance either," Gerde says, "Because we've been able to control the output from the nebulizers. So we have a very good exposure yield, and avoid a lot of waste by pulsing the nebulizer operation, so reducing the output by more than 90%."

"Dry powders are far more stable," Gerde says, "and liquid solutions with a short shelf-life can end up like bacterial stews before you know it. Then again nebulizers are easy to use. But whether the drug you're developing is wet or dry, you're still going to need the most precise, accurate, predictive data you can get on it, early on. That's always going to be critical. It's not just about powder or solution. It's about precision. That's always what counts most."

ISAB CEO Per Gerde testing PreciseInhale's new nebulizer feature



For more information on Inhalation Sciences

Please contact: Lena Heffler, CEO

E-mail: lena.heffler@inhalation.se

Telephone: +46 (0)70 205 9620

About Inhalations Sciences Sweden AB (publ)

Inhalation Sciences Sweden AB (publ) develops and commercializes world-leading instruments for research into inhalation. The company's patented lab instrument, PreciseInhale®, enables researchers to characterize, with high precision, how aerosols and small particles impact our lungs, and so our health, when we breathe them in